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ABSTRACT

As part of a project that identified the specific literacy skills required in ten occupations, this report provides two levels of instructional information about secretaries. Factual data are presented in Parts I and II for use in decision making by program developers, administrators, teachers, and counselors. These sections note the specific literacy requirements (reading, writing, listening, speaking, and mathematics) that were identified at three job sites and in three vocational training programs. Part III presents instructional methods/materials that adult basic education teachers can use to develop literacy skills while imparting job related knowledge. The lesson format is based on a directed reading activity and includes vocabulary and concept development, sentence and organizational structure, silent reading, and skill development. Appendixes list the technical vocabulary that secretaries need to know, the 100 words that represent 45% of the language sampled for the entire project, and occupational literacy requirements for the ten occupations that were studied. (AEA)

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THE LITERACY REQUIREMENTS OF A SECRETARY ON THE JOB AND IN A VOCATIONAL TRAINING PROGRAM

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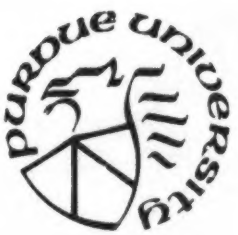

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* * *

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TABLE OF CONTENTS

PROJECT ABSTRACT		1
INTRODUCTION		2
PART I	REQUIREMENTS ON THE JOB	5
	Job Sites Studied	5
	Reading Requirements	6
	Special Reading Considerations and Problems	7
	Uses of Reading	7
	Writing Requirements	9
	Mathematics Requirements	10
	Oral Language Requirements	11
	Key Non-literacy Requirements	12
PART II	REQUIREMENTS OF THE VOCATIONAL TRAINING PROGRAM	14
	Courses Studied	14
	Reading Requirements	14
	Special Reading Considerations and Problems	16
	Uses of Reading	18
	Writing Requirements	19
	Mathematics Requirements	19
	Oral Language Requirements	19

PART III	INSTRUCTIONAL RECOMMENDATIONS	22
	Project Overview	22
	Organization of ABE Lessons	24
	Notes on Teaching Vocabulary	25
	Notes on Teaching About the Structure and Organization of Text	27
	Directed Reading Activity	28
	Reading to Accomplish Work	30
	Reading to Learn Information	32
	Counseling the ABE Student	33
	Summary	33
BIBLIOGRAPHY		36
APPENDIX A	KEY TECHNICAL VOCABULARY	37
APPENDIX B	HIGHEST FREQUENCY WORD LIST	50
APPENDIX C	SUMMARY OF OCCUPATIONAL REQUIREMENTS	52

PROJECT ABSTRACT

THE IDENTIFICATION OF LITERACY REQUIREMENTS OF JOBS IN INDUSTRY AND CORRESPONDING VOCATIONAL TRAINING PROGRAMS

1.	Need Addressed:	Meeting the educational needs of adults with minimal literacy skills who wish to enter skilled or semi-skilled occupations.
2.	Population Served:	Adults with minimal literacy skills.
3.	Brief Description:	Specific literacy requirements (reading, writing, listening, speaking, and mathematics) of semi-skilled and skilled occupations in business, industry and vocational training programs were determined. The literacy demands of three work contexts and training programs for each of the ten occupations were analyzed and reported.
4.	Major Objectives:	To provide educators, counselors, and administrators with a description of the literacy requirements of semi-skilled and skilled occupations and training programs to which functionally illiterate adults aspire.
5.	Products:	A description of the literacy requirements necessary to hold a job in each of ten occupations and the corresponding requirements necessary to succeed in vocational training programs which prepare individuals for each of those occupations is provided. A booklet for each of the ten jobs was prepared.

INTRODUCTION

This project was undertaken in response to a need, expressed by adult basic educators and counselors, for information about the specific literacy skills necessary for success in several occupations. The occupations studied had been identified as desirable careers during informal interviews with adults who were enrolled in basic education programs in the Lafayette, Indiana area. Employment counselors and officials of the Office of Career Development confirmed that the occupations identified for study were appropriate. Because Greater Lafayette offers a wide range of occupational and training opportunities, the project staff was able to study both job sites and vocational training sites for each of the following occupations: account clerk, automotive mechanic, draftsman, electrician, heating and air conditioning mechanic, industrial maintenance mechanic, licensed practical nurse, machine tool operator, secretary, and welder.

Purpose and Audience

This report provides descriptive and instructional information to adult educators at two levels. Factual data are presented in Parts I and II for use in decision making by program developers, administrators, lead teachers, and counselors. Part III presents instructional methods and materials and is meant for use by adult basic education teachers. Members of both groups may be interested in the entire report, but in preparing it the project staff attempted to address the needs of the two audiences separately.

Procedures

To identify reading, writing, speaking, listening, mathematics, and other characteristics which are necessary for success both on the job and in the training program, three job sites and three vocational college courses were studied.

Required reading materials from each of the six settings were evaluated using two widely used readability formulas, the Dale-Chall Formula and the Fry Readability Graph. Readability estimates were computer assisted. A minimum 2000 word sample of written language was taken from each site. Special considerations and problems related to reading the technical materials were identified, and the relative use of reading as a work tool and as a learning tool was determined.

To identify speaking and listening requirements, one hour samples of oral language were recorded at each job site and in each vocational college course. Language recorded at each site was rated for its technical and formal qualities, and computer-analyzed to assess vocabulary and syntax. Written and oral language samples were used to develop the Key Technical Vocabulary List found in Appendix A. The combined language samples from all occupations studied were used to develop the Highest Frequency Word List found in Appendix B. A summary of the literacy requirements for all ten occupations studied is found in Appendix C.

Writing samples were obtained at each of the six sites and used to determine the nature of written communication demands on the job and in the vocational training program.

Mathematics demands were determined through surveys of materials from the job sites and classrooms. Instructors and supervisors

responded to a questionnaire about the specific mathematics skills necessary for job and/or training program success.

Important non-literacy characteristics were identified by supervisors who completed a rating scale which asked for their estimate of the importance to job success of such factors as cooperativeness, reliability, and attitude toward work.

The following sections of this report are organized according to the requirements of the job, the requirements of the training program, and instructional recommendations.

PART I

REQUIREMENTS ON THE JOB

Job Sites Studied

At each of three separate job sites, the literacy demands of one successful secretary were studied. Reading, writing, oral language, and mathematics were the specific literacy skill areas examined. A private secretary to a university administrator, a secondary school office secretary, and a secretary/receptionist in the personnel office of a large industrial firm cooperated in the study. From each job site samples of reading, writing, and mathematics tasks were obtained. Samples of the oral language requirements of the jobs were obtained by tape recording a randomly chosen one hour period of on-the-job verbal interaction. At each job site the secretary's immediate supervisor completed a questionnaire which was concerned with the importance of thirteen worker characteristics. Supervisors were also asked to identify the mathematics skills necessary for job success and to estimate the amount of time per week that secretaries spent on mathematics-related work.

Reading Requirements

Strong reading skills are a critical aspect of secretarial work. Supervisor estimates of the amount of on-the-job time involving reading indicated that from 20% to 50% of a secretary's time is spent reading. Supervisor remarks, however, suggested that these estimates were probably low. Distinctly different types of reading demands were encountered within each job site's materials. The materials included official documents, handbooks, business letters, time tables, schedules, price lists, and documents involving tabled information.

The difficulty of the materials examined through computer analysis at each job site was consistently very high. The readability estimates shown below are the results of two readability formulas, the Dale-Chall Formula and the Fry Readability Graph. For the materials examined, the two methods produced identical estimates. The estimates, however, may be low in that they are near the upper limits of the formula ranges.

Readability Estimates for Job Site Reading Materials

Job Site One	Grade Level 16 to College Grad.
Job Site Two	Grade Level 16 to College Grad.
Job Site Three	Grade Level 16 to College Grad.

Frequent task repetition and familiarity with specialized technical vocabulary and writing styles found in the secretarial reading materials offset, somewhat, the apparent difficulty of on-the-job reading requirements. It may be true that high levels of reading comprehension are unnecessary when transcribing and typing letters and manuscripts composed by others, and that this may reduce the need for very high levels

of secretarial reading skills. It is certain, though, that those who composed the letters and other materials transcribed and typed by secretaries expected and appreciated good secretarial editing abilities, and that such abilities depend in part on good reading ability. On the basis of the readability formula estimates alone, the reading requirements of secretarial work seem to be very high.

Special Reading-Related Problems and Considerations

In general, on-the-job reading requirements involved formal conversational style as well as formal and technical writing styles such as those presented in Example I. An important reading requirement of the jobs studied involved obtaining information from tables and charts. The table shown in Example II utilizes headed columns which separate and organize important information. The sentence structure in such tables tended to be abbreviated and similar to the style used in composing telegrams; unnecessary words such as the, and, and that were omitted.

EXAMPLE II

Written Information Presented in Table Format

Course Title and Content	Intended Participants	Date and Time Offered	Location of Class	Prerequisites to Attend	Length of class	Size of class
Job Evaluation and Classification Seminar A discussion and slide-tape presentation on procedures for requesting job audits; how clerical/service jobs are evaluated and classified using the NIFES system.	Clerical/ Service	Aug. 17, 1978 May 10, 1979 1:30 to 3:00 p.m.	STEW 311 STEW 311	None	1½ hrs.	20-30 per session
	Supervisors	Aug. 17, 1978 May 10, 1979 10:30 to 12:00 a.m.	STEW 311 STEW 311			
	NOTE: Job Evaluation and Classification Seminars are also available on an individualized departmental basis and may be scheduled by supervisors. Contact the Job Analysis Section of Personnel Services.					

EXAMPLE III

Numerical Information Presented in Table Format

ACCIDENT AND ATTENDANCE REPORT

DEPT. FOREMAN	MONTH ALL ACCID.	TOTALS LOST TIME	YEAR ALL ACCID.	TOTALS LOST TIME	INCIDENCE* ALL ACCID.	LOST TIME	HOURS SINCE TIME	WORKED LOST ACCID.
NAME							3428	
							18377	
							3200	
						1.58	15651	
						1.80	27237	
						2.25	36644	
							8673	

*Year to Date Incidence: All Accidents Based on 20,000 Man Hours - Lost Time Based on 200,000 Man Hours.
Since 11-1-78.

In each of the tables illustrated above the secretaries were required to match and interpret the information presented in vertical columns with names or concepts found in the left column.

Use of Reading on the Job

Each secretary who participated in the project completed questionnaires concerning the use of reading in three separate job-related tasks. The questionnaire results showed that reading was used predominantly as a tool for accomplishing work. That is, in most situations, the content of what was read was not remembered for more than several minutes. When a task requiring reading was done on a daily basis, secretaries reread rather than remembered the key information. In this way, precision in accomplishing tasks was maintained because memory-related errors were avoided. (Examples II and III show important information which is carefully reread rather than

remembered.) In filing tasks reported by one secretary, lapses of memory or careless reading could cost hours of lost time searching for misplaced information. Similarly, in scheduling school activities, another secretary noted that inaccuracy would cause her little personal inconvenience, but the effect on teachers and students would be dramatic. She therefore had to use great care in preparing schedules and other official materials. The preparation of official business letters also demanded close attention and careful reading in that editing and correcting of spelling and punctuation was often necessary. Overall, reading in secretarial work was used to accomplish work correctly and efficiently. On a day-to-day basis reading was not used to learn information.

Writing Requirements

The ability to communicate through both informal and formal grammatical written language was required at each of the job sites studied. Writing typically involved the transcription of materials written by others in a formal or technical style. Spelling accuracy and ability to use dictionaries and similar reference materials to determine spellings and word meanings was necessary. Example IV presents excerpts from letters done in formal and technical styles of writing.

EXAMPLE IV

Cases of Formal and Technical Writing

A. Formal Style

"The Board of Trustees of the Lafayette School Corporation encourage field trips and tours when they can significantly augment and enrich classroom instruction and make classroom centered learning more relevant to life..."

B. Technical Style

"There could be justification for maintaining exposure and medical records for use by OSHA, but the consequences of..."

Secretaries were expected to not only prepare drafts of such material for official use but were expected to "catch" grammatical and spelling errors as part of the typing process. Thus, while composition was not actually required, several components of good written composition skills were necessary. Secretaries, of course, had to have reading comprehension in order to recognize errors in original drafts.

Mathematics Requirements

Supervisors of the participating secretaries rated the importance of a subset of mathematics skills including addition, subtraction, multiplication, and division; processes involving fractions; measurement; word problems; geometry and algebra. All supervisors stated that accuracy in addition, subtraction, multiplication and division of whole numbers and decimal fractions was required. One supervisor

noted that the ability to calculate with fractional numbers other than decimals was desirable. The ability to use a calculator or adding machine was required at two of the job sites and rated as desirable at the third.

The amount of time per week spent on mathematics-related tasks was five hours at the university job site, ten hours at the industrial site, and 20 hours at the secondary school site. The mathematics skills required of the secretaries were not sophisticated, but the required skills were used frequently and, as with reading tasks, accuracy was critical.

Oral Language Requirements

The use of oral language by secretaries ranged from informal conversation to formal technical interactions with co-workers and supervisors. Recordings of secretarial on-the-job language contained a large number of telephone conversations. A formal style of spoken English was uniformly used in telephone conversations. Example V presents an excerpt from a typical telephone conversation.

EXAMPLE V

Telephone Language

"Yes, may I talk to Mr. Jones please? I'm calling in reference to your telephone etiquette seminar. We don't have enough people to hold the class so we're going to have to cancel it."

Because each of the secretaries who participated in the study was required to represent the employer in contact with the public, command of standard, grammatical English was required. For example, the use of phrases such as "It don't matter" or "I ain't gonna do it" did not occur in the transcripts of secretarial language as they did in transcripts of language from occupations where less formality is expected.

Listening to and following verbal directions was an important aspect of oral language at each of the secretarial job sites. Likewise, the ability to take coherent notes for later reference was an important listening skill for each of the secretaries. Example VI presents a situation requiring listening, following directions, and note taking.

EXAMPLE VI

Listening and Following Oral Directions

Supervisor: "Judy, here is the memo that I mentioned. Type it up and send copies to Nesbitt, Jim in shipping, Johnson, and Peters in plants two and three, and Becky in accounting. Better send a copy to the secretary of the Board, too. I'll need that ABC file as soon as it arrives."

Key Non-Literacy Requirements

Supervisor ratings of requirements important to job success brought out the following important non-literacy characteristics: good attendance, cooperativeness, positive work attitude, good standard spoken English skills, neat personal appearance, and

ability to follow directions. Each of these characteristics was rated as high or higher than reading and mathematics abilities.

PART II

REQUIREMENTS OF THE VOCATIONAL TRAINING PROGRAM

Courses Studied

The reading, writing, oral language, and mathematics requirements of three courses in a post-secondary vocational college secretarial science training program were studied. The courses, Shorthand, Records Management, and Clerical Office Procedures, had been determined by their instructors and the school administration to be representative of the training program as a whole. The literacy demands placed on students in other secretarial science courses are approximately the same as those presented in this report.

Practical experience was a large part of each course studied. Students were given planned periods in which to practice the skills and concepts presented through lectures and readings. Concrete practical experiences may reduce the apparent demands of the training program.

Reading Requirements

Because of the need to present large quantities of information in a limited period of time, training programs typically have greater

literacy demands than do the occupations to which they correspond. Lectures and written materials are used in place of the first-hand experience and more personalized supervision which can occur at the job site. On-the-job secretarial training programs typically rely on learning by experience.

Reading materials including textbooks, workbooks, teacher prepared handouts, and examinations were studied and rated according to the style in which they were written. The rating scale included informal, formal, literacy, and technical levels. The materials surveyed in the secretarial science training program were written in formal or technical styles such as those illustrated in Example VII.

EXAMPLE VII

Formal and Technical Writing Styles

A. Formal Style

"Registered mail provides protection and evidence of receipt for valuable and important mail. When this service is used, the post office guarantees delivery and, in case the mail is lost, becomes responsible to the sender for the declared value of the mail up to $10,000." (Fulton, et al., 1977, p. 85)

B. Technical Style

"The out guide is a heavy (usually pressboard or plastic) guide with the word "OUT" printed on its tab at a position and in a color so that it can be readily seen in a file. Two types of out guides are illustrated in Figure 5. 6 - one with a holder..." (Johnson, 1974, p. 114)

The level of difficulty of the reading materials required in the courses studied was determined by computer analysis using two widely accepted readability formulas. The Dale-Chall Formula and the Fry Readability Graph provided estimates of the general level of reading ability required for comprehension of the materials. Because the estimates of the two formulas were not identical, the estimates of readability for two of the three courses are presented below as ranges of difficulty. The programmed format of the workbook text and the predominance of shorthand symbols in the third course prevented the use of readability formulas, which require a sentence/paragraph format.

READABILITY ESTIMATES

Course One	12th Grade to College Level
Course Two	10th Grade to 12th Grade Level
Course Three	No estimate, (Not written in sentence/paragraph format).

Readability estimates do not account for factors such as knowledge of a specialized vocabulary or reader motivation. Such factors are known to affect reader success in mastering difficult material. Special preparation of students and high student motivation to achieve may therefore offset the readability of the course materials.

Special Considerations and Problems

The written materials used in the three courses studied made extensive use of tables, figures and illustrations. Instructions

and routines were presented in lists of steps which had to be interpreted and followed by the students. Example VIII illustrates the use of graphic presentations.

EXAMPLE VII

Use of Illustration

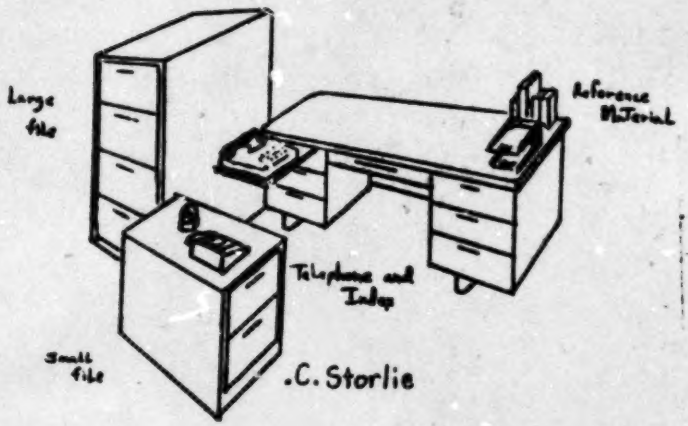

Figure 4-7 shows an efficiently organized secretary's work area.

Example IX presents a sequence of steps to be followed in accomplishing an important task. Lists of steps are frequently employed in textbooks to present important methods or procedures.

EXAMPLE IX

An Important Task in Listed Steps

"3. Count the chargeable words:

a. The point of origin, date, inside address and signature are transmitted free, as explained above.

b. The comma, period or decimal point, colon, semicolon, dash or hyphen, quotation marks, parentheses, question mark, and apostrophes when used in the body as ordinary punctuation are transmitted as written but not counted in computing the chargeable words.

c. When names of cities, states, and countries of two or more words are used in a telegram each word is counted separately. (Example: North Dakota, two words; New York City, three words.)"

Uses of Reading

In the secretarial science training program reading is used both as a tool for accomplishing work and as a learning tool. Classroom exercises resembling job tasks are done on a daily basis. When filing, copying of official letters, and carrying out work assigned through memoranda is required, reading to do is used. When learning and studying is required, reading to learn is necessary. Though precision is important in both uses of reading, special preparation and organization play a key role in learning and remembering through reading. Examples of materials from reading-to-do tasks are found in Example II and III in Part I of this report. Reading-to-learn materials are illustrated in Examples VII, VIII, and IX above. Instructional strategies and techniques related to reading as both a work tool and a learning tool are presented in Part III of this report.

Writing Requirements

Many of the tasks required in the secretarial science training program required the ability to communicate in writing using complete sentences and standard grammatical conventions. Textbooks and workbooks provided examples of different formats for personal and business letters. Such training probably is meant to enable students to edit such correspondence on the job. Writing required in workbook exercises did not necessarily demand complete sentence responses because many of the questions presented blanks to be filled in with only one- or two-word responses. Tasks such as this are relevant to instruction but may have little resemblance to on-the-job tasks.

Mathematics Requirements

The basic arithmetic processes of addition, subtraction, multiplication, and division of whole numbers and decimal fractions was seen as a requirement by secretarial science instructors. The ability to use a calculator was viewed as highly desirable. Skills involving measurement or finding solutions to word problems were rated as desirable but not essential for job success. It should be stressed that while higher level mathematics skills were not required, accuracy in all mathematics tasks was necessary.

Oral Language Requirements

Formal and informal English was used in the courses examined. Lectures were a combination of formal presentation and informal discussion. Many classroom exercises were done using audio cassette

tape recordings. The style of English employed on the tape recordings was formal and is illustrated in Example X.

EXAMPLE X

Formal Oral English Style

A. Formal Instructions

"The three new, related letters at the end of the dictation tape are dictated at 45, 50, and 55 words a minute. Be sure to practice the shorthand preview for these letters before you take them from dictation." (Leslie, 1972, p. 178)

B. Dictation

"Mr. Royal was appointed to the important position of manager of manufacturing services. This left open his old position as sales manager." (Leslie, 1972, p. 59)

Listening and note taking were important skills for the students in the training program. Students were also expected to find and refer to specific pages and figures in textbooks during lectures. Oral directions were given by instructors, and students were expected to carry out tasks assigned in this way. Often important tasks were assigned by the instructors using more informal or casual English styles than occurred during the recorded lessons. Example XI illustrates such informal instructional language.

EXAMPLE XI

Informal Classroom Oral English

"Most letterheads, business letters, are 8½ by 11, regular typing paper size. Now, if some firms have something special to send out--an announcement or an invitation or adding someone to the firm (which would also be an announcement) -- they may get a different size letter or letterhead. And, of course, it tells you here..."

The use of formal, technical, and informal styles of English in the training program was similar to that found at the job sites studied. The necessity to follow oral directions was also related directly to on-the-job tasks. Therefore, in terms of oral language style and important tasks involving oral language, the vocational training program seemed to provide practice in the use of skills important for secretaries on the job.

PART III

INSTRUCTIONAL RECOMMENDATIONS

Project Overview

The levels of reading skill required on the job and in the vocational training program for secretaries were found to be high. The reading materials from each job site were consistently estimated to require college level reading skills. Training program materials were estimated to require at least high school level reading skills. However, it was noted that knowledge of key concepts and words and the effect of daily contact with familiar materials may reduce the actual difficulty of reading tasks.

On the job and in the training program, reading was used both as a tool for accomplishing assigned work and as a tool for learning information. Reading-to-do work was predominant on the job. The secretaries followed routines such as filing, which required precise, daily reading of the same material. In transcribing and typing letters, the secretaries carefully edited and proofread important correspondence.

In the vocational training program, secretarial students were required to read to learn information more often than the secretaries on the job. However, reading was frequently used as a work tool in ways similar to its use on the job.

Writing at both job and training sites was concerned mainly with transcription and typing of memoranda and letters composed by others. Composition was not required of the secretaries or their training school counterparts, but comprehension of letters and memoranda was necessary in that proofreading and editing for grammatical, punctuation, and spelling errors was expected by supervisors and instructors. Reading skills, therefore, were used in concert with composition skills in such tasks even though the secretaries did not actually write the original version of the letters they typed or transcribed.

The level of mathematics skills required of secretaries and trainees was not as high as the level of reading skills required. Supervisors reported that basic addition, subtraction, multiplication, and division of whole numbers and decimal fractions (such as 1053.35) was required. The ability to use adding machines and calculators was required at two job sites. Rated as desirable, but not required, were skills in computing with fractions other than decimals and measurement skill. Precision in mathematics was emphasized at all locations. Thus, while high level mathematics skills were not expected, careful, accurate work was very important.

Oral language used in both on-the-job and training settings ranged from informal conversation to formal and technical inter-

actions between co-workers and supervisory personnel. At the job sites, formal English was required in frequent business-related telephone conversations. In fact, the majority of on-the-job language recorded was telephone conversation.

Job site supervisors rated the following worker characteristics according to their contribution to job success: good attendance, cooperativeness, positive attitude toward work, good standard spoken English skills, neat personal appearance, and ability to follow directions. Each characteristic was rated at least as high as reading and mathematics skills. Although high level reading skills and accurate use of mathematics are important to job success, there are other qualities which contribute as much more to success on the job.

A brief summary of how the literacy requirements of a secretary compare to those of the other nine occupations studied is provided in Appendix C.

Organization of ABE Lessons

The recommendations which follow are meant to aid teachers and tutors in designing streamlined lessons which develop both literacy skills and job-related knowledge. Nearly all of the literacy information studied in connection with secretarial occupations and training programs was related to reading. Also, the reading requirements of the jobs and training programs were high. This section, therefore, presents a method of organizing lessons which emphasizes reading. The method is based on a directed reading activity (DRA) which includes vocabulary and concept development, sentence and organizational structure, silent reading, review, and skill development and practice.

The guiding principle of the DRA method of lesson organization is that words, concepts, and skills must be introduced and practiced in situations and materials that are true to life. For example,

words, sentences, tables, and diagrams should be taken from materials similar to those on the job. It may be possible to teach all of the words on the Key Technical Vocabulary List in isolation, but, better practice is to allow immediate practice in context. The best materials for such teaching and practice are manuals and books such as those found on the job or in the classroom. A possible problem here is the disparity between the readers' skills and difficulty of the reading materials. However, parallel materials can be developed by teachers and/or tutors if time permits.

The value of a DRA approach described below is that it allows reading lessons to develop reading skill and usable job knowledge.

Notes on Teaching Vocabulary

The nature of the specialized vocabularies used by secretaries are determined largely by the requirements of specific jobs. There are, however, many words which are used frequently in all secretarial work; application, memorandum, interoffice, and executive are examples of such words. Another group of words used by secretaries are used with high frequency in all English language communication.

Specialized, technical vocabulary words should be taught so that recognition of both the word and its meaning is automatic in reading tasks. One type of specialized word is unique to the specific job. For example, microswitch has a specific meaning in the electronics industry. In teaching words such as this to students who might work in the electronics field, a microswitch or picture of a microswitch should be used. In teaching other specialized words and concepts, similar concrete examples should be used.

A second type of vocabulary word which needs attention in ABE reading lessons, is one which has a common meaning in everyday communication but which also has a specialized technical meaning. Tree, for example, has a clear meaning to most English speakers. Its specialized meaning for secretaries refers to the image left on a carbon copy by a wrinkled piece of carbon paper. Multiple meanings such as these should be taught during reading lessons.

It is important for ABE students to be introduced to common high frequency words and the two types of specialized or technical words in contexts which are similar to those found on the job or in the training program. Both vocabulary and job knowledge development are fostered by this procedure.

Teaching suggestions for vocabulary development include the following:

1. Pair the word to be taught with the concept or object that it refers to whenever possible.
2. Introduce the word using an approach which focuses student attention on the word.
3. Be sure that the new word is read in context.
4. If in doubt, use the general rule that five new words per lesson is best for efficient learning and good retention, but be flexible.
5. Review words frequently.

Sources of job-related vocabulary and concepts are found in texts cited in the bibliography of this report. The style of writing in such books varies greatly. If possible teacher time could be planned for preparing written materials which parallel passages in the books.

Notes on Teaching About the Structure and Organization of Text

The above suggestions on teaching vocabulary words emphasize meaning; words have little use outside of a meaningful context. Even solitary words read from a filing chart have a meaningful context to the secretary doing a filing task.

In reading, it is important to be aware of special patterns of organization. Formal, technical reading materials are organized differently from the short stories and novels used in teaching reading to most Americans. The expository style of presenting information that is used in textbooks and other specialized or technical material is different at several levels from the narrative style.

At the sentence level, ABE students should be taught that expository or textbook style often relates cause and effect. Sometimes this relationship is clearly stated as in the sentence in Example XII A.

EXAMPLE XII

Stated and Unstated Cause and Effect Relationship

A. The bank failed because of poor management.

B. The bank was poorly managed. It failed.

Often, however, the relationship is not stated as in Example XII B. In such cases readers who are not looking for cause and effect connections may miss them.

At the paragraph level, writers of expository material often use a format which states the main idea in the first sentence.

The last sentence summarizes the paragraph and may tie it to the following paragraph.

The chapter level of organization in expository material contains many valuable aids to readers. Key words are used as headings to introduce important sections or concepts. Pictures, diagrams, tables and figures are used to illustrate important ideas. Introductions and chapter summaries are likewise available as aids to readers who are prepared to use them.

ABE students should learn about style features such as these and use them to improve comprehension. Efficient readers use their knowledge of expository style to organize their reading. Awareness of the use of cause and effect keeps them alert for such relationships. Knowledge of paragraph and chapter organization is used to develop a "mind set" which helps to organize important information. Questions based on paragraph lead sentences, headings, pictures and other graphic aids help readers organize, comprehend, and remember what is read. A directed reading activity, described in the next section, is a system which enables the ABE student to become efficient in using organizational factors as aids to comprehension and memory.

Directed Reading Activity

This system of preparing for efficient reading may be used with individual students or with groups. In groups, it requires very little class time to prepare students for reading assignments. For both individual and group use it has been demonstrated to increase reading efficiency and comprehension.

After a review of previously taught, related concepts and assignments, the below procedures should be followed:

I. Develop Readiness for Reading the Assignment.

Purpose: Motivate
Set purposes for reading
Develop vocabulary

Teacher role: Ask Questions -

How familiar is the subject matter and vocabulary to your student?

Teach New Vocabulary -

Be concrete; write out the words as you introduce them. Use examples such as objects or pictures, point out word relationships (i.e., cardiograph and cardiovascular relate to cardiac - heart). Have students wirte the words as they are taught.

Ask Questions to Stimulate Interest -

Focus on titles, pictures, graphs. Relate an anecdote from your own experience or one your students might have had.

II. Direct the Silent Reading of the Assignment.

Develop questions from sub-headings, graphs, pictutes, and tables. Try to focus on relationships in the assignment. (In textbooks, useful questions are often provided by the authors).

Have pupils read silently from 5 to 20 minutes to find the answers (keeping questions in mind as they read).

Encourage students to ask for help when they are confused. Writing questions down in shorthand form is a good practice.

III. Discuss Student Answers to Questions

Do not restate the questions unless necessary. Students need to remember the questions, or they lose the purpose for reading.

Ask higher level questions to develop comprehension. Have student(s) interpret, draw conclusions, and make inferences as well as recall facts.

IV. Reread as Necessary

When answers demonstrate confusion, have the student reread the appropriate small section to determine the reason for the confusion.

V. Follow-up and Skill Development

Confusion or lack of comprehension may signal a need for extra work on vocabulary, concept building or word recognition skill.

In this phase of the lesson important mathematics and other skills can be related concretely to the reading assignment.

REMEMBER:

A DRA is a system, a routine, that you want your student(s) to learn to use independently. Remind your students of this - tell them why you use a DRA system. It will help them now and in their future study.

Reading to Accomplish Work

The term, reading to do, has been used in research and development projects done for the U.S. armed forces (Sticht, et al., 1977). Reading to do refers to the use of reading for the purpose of getting work done. It involves following written directions

and reading to find information which will be used immediately. Such information need not be learned or remembered. Looking up telephone numbers, finding information in a policy manual, or finding important data in a table, chart, or figure are examples of reading to do. Preparation of ABE students for reading-to-do tasks can be incorporated in a directed reading activity lesson.

When lesson materials contain occupationally relevant concepts, ABE students are given important background information which will make higher level training easier. Therefore, lessons should employ materials which are similar in structure and content to those found on the job or in the vocational training program. Paragraphs, tables, charts, and figures might be used verbatim from on-the-job or instructional materials. Alternatively such materials might be paraphrased and reduced in difficulty to match student abilities.

Given appropriate materials and a period of orientation to them, the structural and organizational features of the table, chart, figure, paragraph, or chapter should be pointed out to the student (see Notes on Teaching About Structure and Organization of Text). This is essentially the first step of the DRA described above. When the materials have been introduced, the student should be directed to find a particular fact in the material. (In subsequent lessons the difficulty of the information-finding task should be increased).

Skill in following written directions can be developed using the DRA system and materials similar to Example XIII.

EXAMPLE XIII

Written Directions

1. Listen to the directions on the Presentation Tape and execute those directions in Book I.
2. Do the Supplementary exercises for that lesson in Book II.
3. Complete the Self-Check for that lesson.
4. Take the dictation from the Dictation Tape for that lesson, reading back portions of it from your notes.

Initial lessons should probably contain no more than one or two steps to follow.

In information-finding lessons, the emphasis should be on understanding and careful identification of the required fact. Likewise, in lessons on following directions, understanding and careful execution of the required steps must be emphasized.

Reading to Learn Information

Skill in learning printed information for future use is very important in vocational training programs. The reading skills necessary for reading to learn (Sticht et al., 1977) are taught and systematically practiced in directed reading activity Lessons. That is, the use of previewing, attention to graphic and contextual information, and the organizational factors discussed in Notes on Teaching About the Structure and Organization of Text, above, should be practiced and learned during each DRA lesson. Questioning and rereading, also aspects of the DRA, reinforce important learning skills.

Materials used in reading-to-learn lessons, like those employed in reading-to-do lessons, should be occupationally oriented. (See Bibliography). ABE students who receive reading instruction through job-related reading materials develop not only reading skills but gain important job knowledge as well.

Counseling the ABE Student

The literacy demands of the secretarial jobs and training program studied were high. It is important, therefore, that teachers and counselors consider the facts presented in this report and the individual student's levels of motivation and literacy skill development before beginning to prepare the student to enter a secretarial job or vocational training program. Frequency and intensity of lessons, choice of instructional materials, and long term duration of the instructional program will vary according to the student's level of skill, especially in reading. This does not mean that students with low literacy skills should always be discouraged from preparing for secretarial work. It does suggest, however, that an early and realistic estimate be made of the time and effort required to reach the goal of employment or formal training.

Summary

The literacy demands of secretarial jobs and training programs were found to be high. It is probable that experience and familiarity with specialized information reduces the perceived demands of job and training tasks. However, the extent of such a reduction is not known.

It was observed that vocational training programs for secretarial occupations provided students with tasks that were very similar to on-the-job tasks. Also, vocational program reading materials were shown to present important training concepts through texts which were less difficult than those found on the job. Reading research supports the practice of reducing readability levels when difficult information is presented in written form.

Instructional recommendations in this report emphasized the development of reading skills. Other literacy and non-literacy requirements were recognized as important, but it was clear at all job and training program sites studied that strong reading skills were essential.

The recommended approach to ABE reading instruction was a directed reading activity (DRA) because it is systematic and provides for essential skill development and practice. Suggestions were presented on teaching vocabulary and the use of important structural and organizational factors which are related to comprehension.

Final recommendations sections focused on reading to accomplish work and reading to learn information. These two types of reading were discussed separately because they require different skills.

It was recommended that, in using the information and recommendations presented here, ABE teachers should be well acquainted with the occupational interests and motivation as well as the literacy skills of their students. The literacy requirements of secretarial

occupations are such that some students whose skills are well below those required may be unable to achieve sufficient skills in a reasonable period of time.

BIBLIOGRAPHY

Sources of job-related material which may be modified for use in ABE lessons.

Fulton, P. General Office Procedures for Colleges, 7th edition, Cincinnati, South-Western Publishing Co., 1977.

Johnson, M. M. and N. F. Kallous. Records Management, Cincinnati, South-Western Publishing Co., 1974.

Leslie, L. A., Zoubek, C. E. and O. M. Henson. Reinforcement, Book II, Gregg Shorthand Individual Progress Method, New York, Gregg Division/McGraw-Hill Book Company, 1972.

ABE Teacher References

Bowren, F. R. and M. V. Zintz. Teaching Reading in Adult Basic Education. Dubuque, Iowa: Wm. C. Brown Publishers, 1977.

Duffy, T. M. "Literacy Research in the Navy". In Sticht, T. G. and D. W. Zaph (Eds.), Reading and Readability Research in the Armed Services. (HumRRO FR-WD-CA-76-4). Alexandria, Virginia: Human Relations Research Organization, 1976.

Harris, A. J. and E. R. Sipay. How to Teach Reading. New York: Longman Inc., 1979.

Kucera, Henry and W. Nelson Francis. Computation Analysis of Present Day American English. Providence, R.I.: Brown University Press, 1967.

Ransom, G. A. Preparing to Teach Reading. Boston: Little, Brown and Company, 1978.

Rauch, Sidney J. (Ed.). Handbook for the Volunteer Tutor. Newark, Delaware: International Reading Association, 1969.

Sticht, T. G. (Ed.) Reading for Working: A Functional Literacy Anthology, Alexandria, Va., Human Relations Research Organization, 1975.

Sticht, T. G.; Fox, L. C.; Hauke, R. N.; and D. W. Zaph, The Role of Reading in the Navy, Alexandria, Va., Human Relations Research Organization, 1977.

Sticht, T. G.; Fox, L. C.; Hauke, R. N.; and D. W. Zaph, Integrated Job Skills and Reading Skills Training Program. San Diego: Navy Personnel Research and Development Center, 1977.

APPENDIX A

TECHNICAL VOCABULARY LIST

This list is based on the total oral and written samples of the language of secretaries both on the job and in the training program. Words included in the most frequent 1000 words of the Kucera-Francis list (based on adult language) have been deleted. The list was also edited to remove numerals; lables; names of people, places, products, and companies; contractions and possessives; and colloquialisms resulting from the oral language samples.

Some words included in the list are relatively uncommon words that occurred in the total language sample and are not necessarily technical terms. Thus, the list should be treated as a source rather than a criterion. The 94 most common words have been marked with an asterisk.

Total Sample Words = 15,259

Different Words = 2,492

abbreviate
abbreviation
abilities
ability
abroad
absence
absences
absent*
academic
acceptable
access
accession
accidents
accommodate
accommodating
accompany
accomplish
accordance
accountant
accounting
accounts
accurate
accustomed
achieve
acknowledge
acquisition
active
actively
adding
address*
addressed
addressee
addressing
addition
adequate
adjunct
adjusting
administer
administrate*
admire
admissions
admit
admitted
adopt
adopted
adult
adults
advance
advanced
advantages
adversely
advisors
affected
afraid
agencies
agency
agents
agreed
agreement
aids
aims
aligned
alignment
alleged
allotted
allowance
allowed
allowing
allows
alphabet
alphabetic*
alternated
amended
analyze
angles
animated
announcement
annoyed
answers
anticipate
anticipation
anybody
apostrophe
apparent
appearing
appears
appendix
applicable
applicants
application*
applies
apply
applying
appointment
appreciate
appropriate*
approval*
approved*
approves
approving
aptitude
archival
archives
arise
arrange
arranged
arrangement*
arrival
artisans
aside
aspect
aspects
assembly
assessed
assessment
assigned
assignment
assist
assistance
assistant*
assists
associate
assume
assumption
assurance
assure
assuring
atrocious
attempt
attend
attendance*
attends
attorney
attributes
audio

audiovisual
audit
auditing
augment
author
automatic
avoid
avoiding
award
baccalaureate
baggage
balance
band
base
basically
bear
bearing
becomes
begin
begins
behavior
believed
belongs
benefit
benefits
betterment
biased
bids
biweekly
blank
block
blower
bonds
bookkeeping
books
borrowed
boss
bottom
box
brightly
brings
broaden
brother
buildings
bulge
bulletin
bureau
bursar
bus
businesses
buses
busy
buying
bye
byproducts
calculated
calling
calls
campus
campuses
cancel
cancelled
cancelling
cans
capabilities
caption
carbon*
card*
cardboard
cards
career*
carefully
caring
carrier
carriers
carries
carry
carton
cartons
cash
cassette
catalog
cataloging
catalogs
centered
centers
certificate
certified
certify
changed
changing
channels
chaperone
chaperones*
chapter
characteristic
chargeable
charged
charges
charts
check
checked
checking
chemical
chemist
chip
chosen
chronological
circulation
circumstance
citation
classes*
classification
classified
classify
classroom
clearness
clerical*
clerk
clever
clients
clock
clothes
clothing
code
coded
cognizant
collection
colon
colored
combined
combines
comma
commerce
commercial

commitment	conference*	continent	coverage	decrease
communicate*	confirmed	continually	covered	deemed
companies	conflict	continuing	created	defined
compared	confuse	continuous	creation	defines
compatible	confusion	contraction	credit*	definition
competence	connected	contracts	crib	delivery
competition	connecting	contractual	critical	demand
competitive	conscious	convenience	cross	demonstrate
complaints	consecutive	cooperation	crumpling	departure
completed	consent	cooperative	cultural	depend
completing	consequence	coordinator*	cultures	depending
completion	considerable	copies*	curled	depends
complex	considerate	coping	current	depicts
compliment	considering	copy*	curricular	description
component	consistent	copying	curriculum*	designate
components	construction	corners	custodians	designates
compound	construed	cord	customer	designer
comprehensive	consult	corporation	danger	designers
comprises	consulted	correct	dash	desired
computer	consulting	correctly	date*	desiring
computing	contact*	correspond	dated	desk
concept	container	counselor	dates	destroy
concerning	containers	counselors	dealt	destroyed
conclusion	containing	count	dear*	detailed
concrete	content	counted	decide	details
condition	contents	counter	decimal	detect
conduct	contests	courses*	declared	determiner

determines
detract
detrimental
develop
developing
diagonal
dictate
dictating
dictation
dictionaries
dictionary
differentiate
differently
difficulty
dig
diploma
directed
directions
director*
directors
directory
disadvantage
disapproval
disapproving
disc
discarded
discern
discontinuous
discriminate
discuss
discussed
dislike
displays
disposal
disposing
distinctive
distribute
distribution
divide
divisions
double
doubtful
downstairs
drawer
drew
driven
driver
drivers
drum
duplicate
duplicating
duration
duties
earns
ease
easily
economical
edge*
edges
educational
educator
effectiveness
efficiency
efficiently
electronic
eligibility
eligible
emergencies
emphasis
employed
employee*
employees*
employer
employing
employment
encompass
encourage
encouraged
ends
engaged
enhance
enlightened
enrich
enroll
enrolled
enrolling
enrollment
enrolls
enterprise
entrusted
envelope
envelopes
equipped
equivalency
equivalent
errors
establish
establishing
etc.
etiquette
evaluated
evaluation
evenings
event
events
everyone
everytime
exact
examination
examiners
examples
excellent
exception
exceptions
excess
excused*
executive
executives
exercised
exhaust
exist
expanded
expecting
expects
expense
expenses
expensive
explain
explained
exposure
extended*
extends
extension
extra
extras

extreme
facilities
factor
factors
factory
faculty*
failure
fair
familiar
fastened
faults
feasible
features
February
federally
fee*
feels
fees*
fellow
fifteen
fifth
file*
filed
files
filing*
fill*
filled
film*
filmstrip
filmstrips
financial
fingers
firmly
firms
fixed
flammability
flammable
flat
flaws
flow
fold
folded
folder*
folders
follows
followup
forget
forgot
forwarded
fourth
frame
frames
framework
frequent
frequently
fulltime
fully
functions
gained
gallon
games
geographic
gloves
goal
goals
goes
goodbye
governed
governing
grade
graded
graduate
graduated
grammatical
granted
graphics
graphs
guarantees
guardian
guardians
guessed
guidance
guide
guided
guideline
guidelines
guides*
guiding
handing
handling
handset
handwriting
happen
harassment
harder
hazardous
heading
headquarters
health
heath
hello
helping
hesitate
highly
hired
hiring
holder
holdings
holds
homes
hone
hourly
houses
hub
humanities
hunts
hurry
hurt
hyphen
hyphenated
hyphenation
identical
identification
identified
identifies
identify
identifying
illness
illustrate
illustrating
illustrator
implementation
implies
imply
improve

improved
improvement
improving
inactive
inadvisable
inch
included*
includes
incorrectly
increases
indefinite
independent
index*
indexing
indicate
indicates
indicating
indication
indicator
indirect
inferior
influences
inform
informal
inhalation
initial
initials*
initiated
injury
inoculation
insatiable
insert
inserted
inspect
inspection
institutes
instruction*
instructor
insurance
insured
integrated
intended
intense
intent
intercom
interested
interfere
interference
interoffice
interpretation
interstate
interview
interviews
inventory
investigate
invitation
involves
involving
isolated
item
itemized
items
itinerary
January
jobs
jog
join
joined
joint
jointly
joy
July
jurisdiction
justification
juvenile
key
kids
kill
killed
killing
kinds
king
knowing
knows
label
labels
lacquer*
lacy
laundry
lawyer
lawyers
leading
learn*
learning
legal
legitimate
letterhead
levels
libraries*
library*
lie
listed
lifting
lights
likelihood
limit
limited
liquid
listed
listen
listings
lists
loan
lobbed
locally
located
location
locations
locked
lodging
logical
locks
lose
lots
lunch
machine
machinery
machines
mail*
mailing
maintain
maintained
maintaining
maintains
male

manage
management*
manager
manual
manually
margin
mark
marked
marker
marks
match
materials*
maximum
meals
measure
measurement
measures
media
meetings
memorandum*
memorize
memory
mention
mentioned
merchandise
merit
message
metal
microfilm
microforms
microrecord
mile
mimeograph
mine
minimum
minumum
minute
miscellaneous
misfiled
misfiling
missed
misspelled
mistakes
misunderstood
mixed
Monday
motion
mouth
multiply
mutual
named
names*
narrow
neat
neatly
necessarily
necessity
neglect
negligence
nephew
newspaper
nice
nondiscriminate
nonresident
normally
notations
notes
noticeable
notification
notified
notify
notifying
noxious
nudge
numbered
numeric
numerically
numerous
objectives*
obscured
obtain
obtaining
occasion
occupation
occupies
occupy
occur
offer
offered
offerings
offers
officer*
offices
official
offset
omit
ongoing
opening
operated
operator
optional
orange
ordered
orderly
orders
ordinarily
ordinary
organized
organizer
orientation
orienting
origin
original
outcomes
outline
outlined
outs
overall
overhead
overlook
overnight
overtime
paced
packages
parentheses
parents*
partial
participant
participate*
particles
partners
pass
passport
payable
payment

pen	placing	prepare	programmed	qualification
pencil	planned	prepared	project	qualified
percent	please*	prepares	projection	qualify
percentage	pleasure	presented	projects	quantities
perfection	plus	preservation	promotion	quarter
perform	pocket	president	pronounced	quick
performing	policies	pressboard	proof	quotation
periodic	portable	presuppose	proper*	quoted
periodical	portion	prevent	properly	radius
periods	positions	prevents	proposal*	rapidly
permanent	positive	primarily	proposals	rarely
permanently	post	primary	proposed*	rates
permission*	postal	principal*	protect	reaches
permitted	postdoctoral	principals	protection	reader
personally	posters	principles	prove	readers
personnel*	pracise	print	provides	reality
pertaining	practical	printouts	providing	reasonable
petition	practically	prior	provisions	receipt
philosophy	practice	priorities	publication	receive
phone	precaution	privileges	punctuation	receiving
photograph	preceding	procedure*	pupil	recognize
phrase	predetermine	procedures*	pupils*	recommend
phrases	preface	processing	purchase	recommendation*
pictured	preferred	producers	purchasing	recommended
pictures	prefixes	product	purposes	recordings
pieces	preliminary	productivity	purposive	records*
placement	premises	profession*	puts	recreation

reduce	regular*	requesting	rival	secondary
reduced	regularly	requests	role	secretarial
reducing	regulated	require	rose	sectional
reduction	regulation	requirement	routes	sections
reel	regulator	requires	rubber	secure
refer	rehash	requisition	rule	secured
reference	reimbursement	resemblence	rules*	securing
references	rejection	reserve	safer	security
referencing	related	resident	safety	selection
referral	relating	resource	saint	self
referrals	relation	resources*	sake	sell
refferred	relatively	respective	salary	sells
referring	relevant	response	salutation	semester*
refiled	relieve	responsible*	satisfaction	semesters
reform	remission*	restriction	satisfactory	semicolon
refrigerate	remodeling	retaining	satisfy	seminar
refund	remote	retention	Saturday	seminars
refundable	removal	retired	save	send
refunds	removed	retrieval	schedule	sender
regarding	removing	returning	scheduled	sending
region	rented	returns	schedules	sentence
regional	repair	review	scholar	sentences
register	reports	reviewed	sciences	separate
registered	representation	reviewing	script	separately
registers	represents	reward	sealed	sequence
registrar	request*	rich	searcher	serve*
registration	requested	ridding	seats	serves

session
sessions
sets
setting
sheet
sheets
shelves
shop
shorter
shorthand
should
showing
shows
sign
signal
signals
signature
signatures
signed*
significant
signify
signing
silent
sincere
sincerely
sister
situations
sixth
sized
sizes
skilled
skills
skin
slash
slide
slides
slight
slip
slippage
slips
slow
smack
smaller
smoking
smudges
smudging
societies
solve
someone
sought
spaces
sparingly
speaking
specialist
specialize
specialities
specifical
specified
speed
spell
spelled
spelling
spending
sponsored
sponsors
spouse
spouses
staffed
stamped
stamps
standards
standpoint
stapler
star
static
status
stepchildren
stimulating
stocks
storage*
store
stored
storing
stress
stressed
stripes
strips
studies
stuffed
styles
subcontract
subdivided
subdivision
subjects
submission
submitted
subscribe
subsequent
substitute
substitution
subsystem
subsystems
succeeding
success
sufficient
suggested
suggestion
summertime
superintendant
superior
supervise
supervised
supervision
supervisor*
supplies
supply*
supporting
suppose
suspects
suspicions
suspicious
systematic
tab
tabbed
tabs
takes
talks
tape
taped
target
tasks
teacher
teachers
telegram
telephone

tells	tops	typewriter	utilized	walk
temporarily	torque	typewriting	vacation	wants
temporary	totally	typical	valuable	weight
tendancy	touch*	typing*	valued	welding
tends	tour	ultimate	van	whenever
terminate	tours	unable	varies	whereabout
terminated	toxic	unacceptable	variety	widely
testing	toxicity	unbroken	vastly	wider
tests	trades	uncertain	vendor	width
text	transfer	uncertainty	verified	willful
textbook	transferred	undergraduate	verify	winning
textbooks	translucent	underlies	veterans	winter
texts	transmitted	underlining	viewer	wishes
thank	transparent	underneath	violation	wishing
thanks	transportation*	understood	violet	witch
thinner*	travel*	undertaking	visa	withdrawing
thirty	treasurer	unexcused	visible	wither
thoughtful	trees	unique	visiting	wonder
thoughts	trend	unit*	visitor	workable
till	trends	units	visual	workplace
tips	trip*	unjustifiable	visuals	workshop
title	trips*	unless	vocabulary	wrinkle
titles	truant	unusual	void	wrinkled
toe	truly	useful	volumes	wrinkling
together	trustees	useless	wage	write*
tool	tuition	uses	wages	writers
tools	typed	utilization	wake	writes

yellow

yesterday

yours

yourself

APPENDIX B

HIGHEST FREQUENCY WORD LIST

The 100 words on the following page represented 45% of the words used in all the language sampled. This list is based on the combined oral and written language samples from all occupations studied. It shows the words used most frequently by adults in the ten jobs studied and in the vocational training programs corresponding to those jobs.

Total Words	=	180,000
Total Different Words	=	9,000

the	will	your	see
of	one	was	more
to	not	get	these
and	an	has	into
a	there	must	just
is	can	any	them
in	when	he	down
it	out	got	time
for	we	know	about
that	which	then	been
you	what	don't	some
be	do	each	business
or	up	air	how
on	pressure	check	its
are	two	that's	back
I	so	but	over
this	they	system	work
with	here	through	would
as	other	valve	temperature
by	ok	going	same
if	right	well	also
have	no	use	where
all	used	than	now
at	may	it's	only
from	should	go	like

APPENDIX C

SUMMARY OF OCCUPATIONAL LITERACY REQUIREMENTS

This appendix presents a brief summary of the literacy requirements for all ten occupations studied.

SUMMARY OF OCCUPATIONAL LITERACY REQUIREMENTS

	On The Job		Training Program	
	Reading	Mathematics	Reading	Mathematics
Account Clerk	College to college graduate level	addition, subtraction, multiplication, division, decimals, fractions, business machines	11th grade to college graduate	addition, subtraction, multiplication, division, fractions, decimals. algebra
Automotive Mechanic	9th to college graduate level	basic processes, decimals, fractions, measurement	9th to college graduate level	basic processes, decimals, fractions, measurement
Draftsman	10th grade to college graduate	basic processes, through geometry, algebra, trigonometry	9th grade to college level	basic processes, through geometry, algebra, trigonometry
Electrician	college to college graduate level	basic processes, throguh geometry, algebra, trigonometry	10th grade to college graduate level	basic processes, through geometry, algebra, trigonometry
Heating and Air conditioning Mechanic	10th grade to college graduate level	basic processes, decimals, fractions, measurement, algebra	11th grade to college graduate level	basic processes, fractions, decimals, measurement
Industrial Maintenance Mechanic	10th grade to college graduate level	basic processes through trigonometry	10th grade to college graduate level	basic processes, decimals, fractions, measurement
Licensed Practical Nurse	10th grade to college level	addition, and subtraction--more necessary to dispense medication	12th grade to college graduate level	addition and subtraction
Machine Tool Operator	9th to college graduate	basic processes, decimals, measurement	9th grade to college level	basic processes, decimals, measurement
Secretary	College to college graduate level	basic processes, decimals, fractions, business machines	10th grade to college level	basic processes, decimals, business machines
Welder	few materials--reading of single word information required	basic processes, fractions, decimals, measurement	8th grade to college graduate level	basic processes, fractions, decimals, measurement, algebra